ancestry, must be abandoned once and for all.—Dr. W. **Nicoll**: A new species of liver-fluke from the kestrel.

Mathematical Society, February 11.—Prof. A. E. H. Love, vice-president, in the chair.—G. H. **Hardy** and J. E. **Littlewood**: (i) The zeros of the Riemann zeta-function. (ii) An assertion of Tchebychef.—G. B. **Jeffery**: The steady motion of a solid of revolution in a viscous fluid.—S. T. **Shovelton**: Relations amongst Bernoulli's and Euler's numbers.—W. P. **Milne**: Apolar generation of the quartic curve.

CALCUTTA.

Asiatic Society of Bengal, January 6.—Maude L. **Cleghorn**: A note on the floral mechanism of *Typhonium trilobatum.* Describes the trap-mechanism of the spathe, by means of which beetles are ingeniously captured at night to ensure cross-pollination. The trap-mechanism of this plant resembles that of the Cuckoo-pint (*Arum maculatum*) in the entrance and exit of the trap being above and at the same opening, but differs from it in the deliberate opening and closing of the passage leading down into the trap. Its floral mechanism does not seem to be so perfect as that of the common Kachu (*Colocasia antiquorum*), but it appears to be an advance on that of the Cuckoo-pint.—F. H. **Gravely**: The evolution and distribution of Indian Spiders belonging to the sub-family Aricularinæ. The Ischnocoleæ found in the Indian Peninsula and Ceylon form a very compact group, probably related to those of other parts of the world through their most primitive species only. It is concluded that the Poecilotherieæ have originated from the Ischnocoleæ as a result of their adaptation to a new environment in the Indian Peninsula or Ceylon, to which they are still confined.

DUBLIN.

Royal Dublin Society, January 26.—Prof. H. H. Dixon in the chair.—Prof. W. **Brown**: The subsidence or damping of torsional oscillations in iron wires is much less than in nickel wires, and is greater in an alternating magnetic field than in a direct field, whilst the reverse is the case with soft nickel wires. With iron wires when the longitudinal load on the wire is sufficiently increased, the damping curves obtained in the direct and alternating magnetic field are identical. Results are also given for iron wires alloyed with silicon, chromium, and nickel, as well as for two non-magnetic wires.—Prof. H. H. **Dixon** and W. R. G. **Atkins**: Osmotic pressures in plants. V.—Seasonal variations in the concentration of the cell sap of some deciduous and evergreen trees. A series of cryoscopic and conductivity measurements made on the sap pressed from plant organs after treatment with liquid air showed that the greater part of the osmotic pressure is due to dissolved carbohydrates. The concentration of electrolytes in leaves increases with age. A similar increase was not found in the roots of *Ilex aquifolium.* The concentration of carbohydrates fluctuates greatly, and causes large variations in the osmotic pressure. In the leaves of *Syringa vulgaris* it was found that the osmotic pressure rose from the opening of the buds and reached its maximum in August. The leaves of both Ilex and Hedera showed higher osmotic pressures in winter than in summer. The osmotic pressure of the tissues of the roots of Ilex attained its maximum in September.

PARIS.

Academy of Sciences, February 8.—M. Ed. Perrier in the chair.—A. **Lacroix**: The existence of grained nepheline rocks in the volcanic archipelago of Kerguelen.—G. **Bigourdan**: Application of the angular comparator to the determination of astronomical refraction and its constant. Details of the proposed method for using the instrument described in a recent paper to measure atmospheric refraction.—Armand **Gautier**: The influence of fluorine on plant growth. In certain rare cases the presence of fluorides in the soil inhibits growth, but in general it has a stimulating effect on growth, flowering, and the formation of seeds.—Ed. **Delorme**: Wounds of the external genital organs.—J. **Guillaume**: Observations of the sun made at the Observatory of Lyons during the second quarter of 1914. Observations were made on seventy-one days, and the results are given in three tables showing the number of spots, their distribution in latitude, and the distribution of the faculæ in latitude.—E. **Goursat**: A class of integral invariants.—Et. **Delassus**: The theory of unilateral finite linkages.—Léon **Bloch**: The theory of absorption of light in metals and in insulators.—F. **Bodroux**: The preparation of esters. Mixtures of alcohol, water, and formic acid give formates on slow distillation, but formic acid has very slight catalytic power in ester formation from other acids. The mixture of sulphuric and hydrobromic acids obtained by decolorising a mixture of bromine and water with sulphur dioxide is recommended as a catalyst, and details are given of its use in the preparation of propyl and *iso*butyl bromides.—L. **Grimbert** and O. **Bailly**: A method for distinguishing the glycerophosphoric mono-esters and on the constitution of crystallised sodium glycerophosphate.—A. **Sartory** and L. **Spillmann**: The bacteriology of gaseous gangrene. In agreement with the results of Weinberg, Doyen, and Yamanouchi, the authors find present in all cases *Bacillus perfringens* in the gangrene pus. Other organisms are present, but this bacillus appears to be the most important as regards pus formation.—P. **Mazé**: The determination of the rare mineral elements necessary to the development of maize. Boron, aluminium, fluorine, and iodine are necessary for the growth of maize.—Em. **Bourquelot,** M. **Bridel,** and A. **Aubry**: The biochemical synthesis of the β-monoglucoside of ordinary propylene glycol with the aid of emulsin.

BOOKS RECEIVED.

International Association for Tropical Agriculture. Proceedings of the Third International Congress, held at the Imperial Institute, London, S.W., June 23 to 30, 1914. Pp. xi+407. (London: John Bale, Ltd.) 10*s.* net.

A List of British Birds, compiled by a Committee of the British Ornithologists' Union. Second and revised edition. Pp. xxii+430. (London: W. Wesley and Son.) 7*s.* 6*d.*

Canadian Institute. General Index to Publications, 1852–1912. Compiled and edited by J. Patterson. Pp. 518. (Toronto: University Press.) 5 dollars.

Bartholomew's Route Chart of the World, with Inset Maps (Edinburgh: J. Bartholomew and Co.) 1*s.* net.

Practical Mathematics. By A. E. Young. Second Year. Pp. xi+164. (London: G. Routledge and Sons, Ltd.) 2*s.* net.

A First Course in Practical Chemistry for Rural Secondary Schools. By W. Aldridge. Pp. xii+122. (London: G. Bell and Sons, Ltd.) 1*s.* 6*d.*

Practical Heat, Light and Sound. By T. Picton. Pp. xv+151. (London: G. Bell and Sons, Ltd.) 1*s.* 6*d.*

Manuale di Fisica. By Prof. B. Dessau. Vol. ii. Acustica, Termologia, Ottica. Pp. vii+612. (Milano: Società Editrice Libraria.) L.15.

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Numériques: Données Numériques de Biologie, Biochimie, Chimie Physique Biologique, Physiologie, Microbiologie, Pharmacodynamie. By E. F. Terroine. Pp. xi + 20. Cristallographie et de Minéralogie. By L. J. Spencer. Pp. viii + 425–446. Radioactivité Atomistique. Electronique et Ionisation. By J. Saphores and F. Bourion. Pp. viii + 295–307. Spectroscopie. By Dr. L. Brüninghaus. Pp. viii + 165–238. L'Electricité, Magnétisme et Electrochimie. By Profs. P. Dutoit and W. C. McC. Lewis, and Dr. A. Mahlke. Pp. ix + 258–417. Art de l'Ingénieur et Métallurgie. By S. L. Archbutt and others. Pp. viii + 510–600. (Paris: Gauthier-Villars et Cie.)

The Hydrogenation of Oils, Catalyzers, and Catalysis, and the Generation of Hydrogen. By C. Ellis. Pp. x + 340. (London: Constable and Co., Ltd.) 16*s.* net.

Catalogue of Scientific Papers. Fourth Series (1884–1900). Compiled by the Royal Society of London. Vol. xiv., C—Fittig. Pp. 1024. (Cambridge University Press.) 2*l.* 10*s.* net.

The Extra Pharmacopœia of Martindale and Westcott. Revised by Dr. W. H. Martindale and W. Wynn Westcott. Sixteenth edition. In 2 vols. Vol. i., pp. xl + 1113. Vol. ii., pp. viii + 469. (London: H. K. Lewis.) Vol. i., 14*s.* net; vol. ii., 7*s.* net.

Mathematical Papers for Admission to the Royal Military Academy and the Royal Military College for the Years 1905–14. Edited by R. M. Milne. (London: Macmillan and Co., Ltd.) 6*s.*

The Next Generation. By F. G. Jewett. Pp. xi + 235. (Boston, New York, Chicago, London: Ginn and Co.) 3*s.* 6*d.*

DIARY OF SOCIETIES.

THURSDAY, February 18.

Royal Society, at 4.30.—Gaseous Combustion at High Pressures: Prof. W. A. Bone and Others.—The Orbits of a Charged Particle Round an Electric and Magnetic Nucleus; Prof. W. M. Hicks.—The Lunar Diurnal Magnetic Variation and its Change with Lunar Distance: S. Chapman.—Some Temperature Refraction Coefficients of Optical Glass: Lt.-Col. J. W. Gifford.

Royal Institution, at 3.—Struggle of Species: Dr. P. Chalmers Mitchell.

Linnean Society, at 5.—The Action of Light upon Chlorophyll: H. Wager.

Institution of Petroleum Technologists, at 8.—The "Cracking" of Oils, with a View to Obtaining Motor Spirit and other Products: W. A. Hall.

Institution of Mining and Metallurgy, at 8.—Notes on some Gold Occurrences in Ashanti: J. Morrow Campbell.—Some Features in the Mining Problems of the East Witwatersrand Area: W. G. Holford.—Prospecting Tin Land in Malaya: W. B. Middleton.

FRIDAY, February 19.

Royal Institution, at 9.—The Visit of the British Association to Australia: Prof. H. E. Armstrong.

Institution of Mechanical Engineers, at 8.—Annual General Meeting.—Convertible Combustion Engines: A. E. L. Chorlton.

SATURDAY, February 20.

Royal Institution, at 3.—Recent Researches on Atoms and Ions: Sir J. J. Thomson.

MONDAY, February 22.

Royal Society of Arts, at 8.—Motor Fuels: Prof. Vivian B. Lewes.

Institute of Actuaries, at 5.—Practical Points in Connection with the Formation and Valuation of Pension Funds, with a note on Group Assurances: J. Burn and F. P. Symmons.

TUESDAY, February 23.

Royal Institution, at 3.—Muscle in the Service of Nerve: Prof. C. S. Sherrington.

Zoological Society, at 5.30.—(1) Abnormal Gills in the Starfish, *Porania pulvillus* O.F.M. (2) The Ciliation of Asterids, and the Question of Ciliary Nutrition in Certain Species: Dr. J. F. Gemmill.—The Methods of Feeding and the Mouth-parts of the Larva of the Glow-worm (*Lampyris noctiluca*): Miss Kathleen Haddon.—Descriptions of New Fossorial Wasps from Australia: R. E. Turner.—Notes on a small Collection of Heterocera made by Mr. W. Feather in British East Africa, 1911–12: Lt.-Col. J. M. Fawcett.

Royal Anthropological Institute, Joint Meetings with The Prehistoric Society of East Anglia, at 2.30, at the Royal College of Surgeons.—Papers by members of the Prehistoric Society; at 8.15.—Ouse Valley Cultures: Charles Dawson.

Institution of Civil Engineers, at 8.—The Electrolytic Action of Return Currents in Electric Tramways on Gas and Water-Mains, and the Best Means of Providing against Electrical Disturbances: H. E. Yerbury.

WEDNESDAY, February 24.

Royal Geographical Society, at 8.30.—Africa after the War: Sir Harry H. Johnston.

Royal Society of Arts, at 8.—The Economics of the War: Prof. W. J. Ashley.

Geological Society, at 8.—The Ashgillian Succession in the Tract to the West of Coniston Lake: Dr. J. E. Marr.—The Radioactive Methods of Determining Geologic Time: H. S. Shelton.

THURSDAY, February 25.

Royal Society, at 4.30.—*Probable Papers:* The Effect of the Depth of Pulmonary Ventilation on the Oxygen in the Venous Blood of Man: J. F. Twort and Prof. L. Hill.—The Function of Chlorophyll: Dr. A. J. Ewart.—Contributions to the Study of the Bionomics and Reproductive Processes of the Foraminifera: E. Heron-Allen.—The Influence of the Hydrogen Concentration upon the Optimum Temperature of a Ferment: A. Compton.

Royal Institution, at 3.—Struggle of Nations: Dr. P. Chalmers Mitchell.

Child Study Society, at 6.—*Discussion:* The Care and Development of the Child—from Ante-Natal Period to Five Years of Age. Ante-Natal Period: Dr. G. Eric Pritchard; Infancy: Miss J. Halford; One to Five Years: Dr. D. Forsyth.

Institution of Electrical Engineers, at 8.—Electricity applied to Mining: C. P. Sparks.

FRIDAY, February 26.

Royal Institution, at 9.—Solar Eclipse of 1914: The Rev. A. L. Cortie.

SATURDAY, February 27,

Royal Institution, at 3.—Recent Researches on Atoms and Ions: Sir J. J. Thomson.

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